CHAPTER 2.0
STATE OVERVIEW

From this elevation, just on the skirts of the clouds,
we could overlook the country, west and south, for a hundred miles
There it was, the State of Maine….Immeasurable forest for the sun
to shine on….No clearing, no house. It did not look as if a
solitary traveler had cut so much as a walking-stick there.
Countless lakes, Moosehead in the southwest, forty miles long by ten wide,
like a gleaming silver platter at the end of the table….and mountains also,
whose names, for the most part, are known only to the Indians

Henry David Thoreau, 1846, *The Maine Woods*

2.1 A LAND RICH IN CONTRASTS

Located at the northeast tip of the United States, the State of Maine is approximately 320 miles long and 210 miles wide and is about halfway between the equator and the North Pole. It is a unique state in that it is almost as large (33,315 mi^2) as all other New England states combined, with a human population of approximately 1.2 million or about one person per 36 mi^2.

Maine is a land rich in contrasts between the boreal and temperate, freshwater and saltwater, upland and wetland, and alpine and lowlands. The state has enormous natural variety and owes its biological wealth to its 17.5 million acres of vast forests, rugged mountains, more than 5,600 lakes and ponds, 5,000,000 acres of wetlands, 31,800 mi of rivers and streams, 4,100 mi of bold coastline, and 4,613 coastal islands and ledges (Brandes 2001, Gawler et al. 1996). Maine is the most heavily forested state in the nation, but also contains some of the most significant grassland and agricultural lands in the Northeast.

This mosaic of diverse physical settings supports a wide diversity of wildlife that can be equaled in few other states. Maine has the largest population of bald eagles in the Northeast. The state's islands support one of the most diverse nesting seabird populations on the East Coast, including habitat for rare species such as the Roseate and Arctic Tern, Atlantic Puffin, and Razorbill Auk. Maine's relatively clean, free-flowing rivers sustain some of the best remaining populations of rare freshwater mussels and dragonflies in the East, host globally rare endemics, such as the Tomah mayfly (*Siphlonisca aerodromia*) and Roaring Brook mayfly (*Epeorus frisoni*), and support the recently listed Atlantic salmon DPS (Distinct Population Segment) (*Salmo salar*) found in eight mid-coast and downeast rivers. Maine's mountains and forested habitats contribute significantly to the global breeding habitat of neotropical migrants such as Bicknell's Thrush and Blackthroated-blue Warbler. The state has some of the best examples of pitch pine-scrub oak forest remaining in New England, hosting a suite of globally rare plants and invertebrates.

Maine is a transition area, and its wildlife resources represent a blending of species that are at or approaching the northern or southern limit of their ranges. The species most familiar to us – birds (292 species), non-marine mammals (61 species), reptiles (20 species), amphibians (18 species), inland fish (56 species), and marine species (313 – chordates, fishes, and mammals) – actually comprise less than two percent of the known wildlife species in the state. Over 16,000 species of invertebrates, 2,100 species of plants, 310 species of phytoplankton, 271 species of macrophytes, and 3,500 species of fungi have been documented, but experts believe many times these numbers actually exist (McCollough et al. 2003, D. Gilbert pers. Comm.). This impressive array of flora and fauna is particularly impressive when one considers that only a handful of species were present just 15,000 years ago when a mile-high sheet of ice covered the state.

2.2 PUBLIC CONCERN FOR CONSERVATION

Since European settlement, at least 14 species of wildlife have been extirpated from Maine. The most well known include the woodland caribou (*Rangifer tarandus*), wolf (*Canis lupus*), eastern cougar (*Felis concolor*), Atlantic gray whale (*Eschrichtius robustus (Lilljeborg)*), timber rattlesnake (*Crotalus horridus*), Labrador Duck, Great Auk, Karner blue butterfly (*Lycaeides melissa samuelis*) and giant sea mink (*Mustela macrodon*). To prevent further loss of wildlife species at risk, the Legislature enacted the Maine Endangered Species Act (MESA) in 1975, one of the first states to do so. In 1986, Maine's first list of 23 Endangered and Threatened species was adopted. After MDIFW reviewed the status of many of Maine's wildlife species in the mid-1990s, 20 new species were added to the list in 1997.

Currently, 49 species of fish and wildlife are listed as Endangered or Threatened in Maine, either under Maine's Endangered Species Act, the U.S. Endangered Species Act (ESA), or both. Present information does not indicate an extinction crisis, but considering the number of species for which we have no information, the growing number of rare species, and the growing threats to wildlife habitat, we cannot afford to be complacent.

Public concern for the conservation of all of Maine's wildlife has grown in the past two decades. In the mid-1980s, the MDIFW initiated a nongame and endangered wildlife program and has since fully integrated nongame responsibilities throughout its Wildlife Division. Complementary programs to conserve rare plants and natural communities were also established in the Maine Natural Areas Program (MNAP) within the Department of Conservation. Maine is also part of the Natural Heritage Program (NatureServe), a national initiative to track and assess biodiversity.

In 1990, the Maine Forest Biodiversity Project and MNAP completed the first assessment of status and trends of statewide biodiversity (Gawler et al. 1996). The Maine Cooperative Fish and Wildlife Research Unit's GAP project (Krohn et al. 1998) documented patterns of vertebrate richness. McMahon (1990) delineated biophysical regions within the state based on climate variables, topography, and soil characteristics, correlated with plant species richness. *Beginning with Habitat*, a landscape approach to habitat conservation was initiated in municipalities in southern and coastal Maine in 2000, and is currently being adapted for statewide application.

Though funding for rare and endangered species has never been stable or secure, as Maine acknowledges the 30th anniversary of the MESA, we have many accomplishments to be proud of.

- Maine's Bald Eagle population has grown from 29 pairs in 1972 to nearly 350 pairs in 2004, was down listed from Endangered to Threatened, and will likely be completely delisted in the not too distant future.

- Piping Plovers have increased from seven pairs nesting on four beaches in 1983 to 61 pairs nesting at 19 sites in 2003, due largely to intensive management at nesting sites and the cooperation of private landowners and municipalities.

- Populations of Roseate Terns have returned to near historical levels, and seabird populations have increased.

- Surveys for many listed species, and a number of Special Concern species, were conducted in several ecoregions, thus significantly enhancing our knowledge of the status of many wildlife species and important habitats.

- Specific baseline surveys were initiated or completed for amphibians, reptiles, breeding birds, owls, shorebirds, nesting seabirds, Harlequin Ducks, dragonflies, damselflies, salt marsh birds, wading birds, grassland birds, freshwater mussels, bats, Black Terns, Canada lynx (*Lynx canadensis*), and wolves.

- Major research studies of Spotted (*Clemmys guttata*) and Blanding's turtles (*Emys blandingii*), vernal pools, Bald Eagles, Atlantic Puffins, wood turtles (*Glyptemys insculpta*), Tomah mayflies, Harlequin Ducks, New England cottontails (*Sylvilagus transitionalis*), Sharp-tailed Sparrows, and Black Terns provided, and are providing, data critical to management decisions.

- The Department initiated a lynx radiotelemetry study in Maine in 1999 at a time when there was little information about lynx in the entire contiguous United States. Research efforts have greatly expanded our knowledge and understanding of lynx abundance, home range, habitat use, survival, den site selection, reproduction, and interspecific competition with other predators, and have provided a significant contribution to the understanding of lynx in the U.S.

- Sixty-one species assessments (comprehensive documents that summarize current knowledge about a species) and 26 management systems (blueprints for making management decisions) were compiled for a number of species and species groups.

- Several new species were discovered in Maine including: the Quebec emerald dragonfly (*Somatochlora brevicincta*) (formerly found only in bogs in Quebec), scarlet bluet damselfly (*Enallagma pictum*) (historically found only in ponds and lakes of southern New England), and the frigga fritillary (*Boloria frigga*). The Sedge Wren and Tomah mayfly were rediscovered after they were believed to be extirpated from Maine.

- Land protection has accelerated the purchase of conservation easements and fee ownership of many coastal areas, islands, Bald Eagle nesting areas, lakeshores, and rare and endangered species habitats.

- A number of websites, books, and informational materials were produced in cooperation with partners to increase awareness and understanding of rare and endangered wildlife in the state.

- Conservation partnerships have been born and strengthened.

2.3 IMPORTANCE OF WILDLIFE TO MAINE'S ECONOMY

Fish and wildlife play an important role in the lives of Maine people. Maine ranks sixth nationally when comparing the percentage of people who participate in hunting, fishing, trapping, and wildlife related outdoor recreation (USFWS 2001). However, fish and wildlife provide more than a source of enjoyment and recreation. A University of Maine report (Teisl and Boyle 1998) estimated that fish and wildlife related recreation contributed over one billion dollars in economic output: $342 million in payroll, 17,680 jobs, and $67 million in sales and income tax revenue. At over a billion dollars annually, hunting, fishing, and wildlife-associated recreation generates over four times the economic output of the ski and snowboard industry (source: Ski Maine Association) in the State and more than three times the combined sales of Maine's potato and blueberry industries (source: Maine Department of Agriculture). Clearly, Maine's quality of life and its economy are strongly influenced by the diversity and abundance of fish and wildlife that inhabit our state.

2.4 IT ALL BEGINS WITH HABITAT

Maine's diverse assemblage of wildlife, plants, and natural communities, and the outdoor experiences we cherish, depends on the availability of suitable habitat. The Maine landscape is not static but the result of profound natural and human changes. Changes brought about by fire, land conversion, abandonment of agricultural land, timber harvesting, and the defoliation of forest by insects, such as the spruce budworm, have had, and will continue to have, a dramatic impact on habitats and levels of biodiversity. Similarly, aquatic ecosystems in Maine have been profoundly and adversely affected by exotic introductions, dam building, pollution, pesticide use, and excessive nutrient input (Gawler et al. 1996). These effects have occurred, and are occurring, statewide but differ in intensity from north to south.

The key landscape features affecting wildlife diversity in southern and coastal Maine are conversion and fragmentation of habitats. Southern and coastal Maine has the highest level of plant and wildlife diversity in the State, yet is also one of the most desirable areas for development. In a 2001 report, The Brookings Institute found that sprawl – the conversion of rural lands for urban or suburban purposes – in the greater Portland area is occurring at one of the fastest rates in the country (Fulton et al. 2001). From 1982-1997, the population of the greater Portland metropolitan region grew 17.4% with a 108.4% increase in urbanized land. It ranked as the ninth fastest growing metropolitan area in the country.

The Maine State Planning Office (1997) reported that "…the fastest growing towns in Maine have been 'new suburbs' 10 to 25 miles distant from metropolitan areas." Two to 10-acre house lots in fields and forests are common. Increasing development pressures are creating a

checkerboard of non-contiguous habitat for wildlife. The Maine State Planning Office (1997) also noted:

> "…habitats for wildlife in Maine have been seriously fragmented by development sprawl….In southern Maine nesting sites for endangered birds, such as the piping plover and least tern, have been lost to development."
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> "A study of 8 towns in southern Maine in 1985 found that 76% of the wetlands were visible from a road or within 2,000 feet…"
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> "Of 2,700 Maine lakes, over 200 have already been harmed by development, and another 300 are at risk if current trends continue."

The Maine Environmental Priorities Project (1996) concluded, "…patterns of development throughout southern and coastal Maine and in riparian zones statewide seriously threaten some species and some rare and critical habitats as well as the overall productivity of Maine's terrestrial ecosystems."

Northern Maine, Thoreau's Maine Woods, has remained largely unsettled but not untouched. Timber harvests were once confined to river courses or areas accessible by water, and most harvests were single tree or small group selection. As a result of increased demand for forest products leading to the advent of mechanized harvesting, and the opening of more extensive road systems as transportation corridors, the nature of timber harvesting in Maine has changed over the last 50 years (Gawler et al. 1996). Though still the most heavily forested state in the country, Maine's forested landscape has been strongly influenced by human use.

To quote an old cliché, "the only constant in life is change". Change is a part of all ecosystems. Understanding how ecosystems change, and how species are affected by change, will be important if we are to maintain Maine's biological diversity.